REMARKS

The present application was filed on September 22, 2000 with claims 1 through 54. Claims 1 through 44 are presently pending in the above-identified patent application. Claims 1, 2, 4, 5, 7-17, 19-25, 27, 28, 30-39, and 41-44 are proposed to be amended and claims 45-54 are proposed to be withdrawn, without prejudice, herein.

In the Office Action, the Examiner required restriction to one invention under 35 U.S.C. §121 and objected to claim 12 due to an indicated informality. The Examiner also rejected claims 1-2, 4, 15-17, 19, 23-25, 27, 38-39, and 41 under 35 U.S.C. §102(a) as being anticipated by Larzon, Lars-Ake et al., "Efficient Use of Wireless Bandwidth for Multimedia Applications," Mobile Multimedia Communications, 1999 IEEE International Workshop, November 15-17, 1999, 187-193, and rejected claims 8-12, 20, 31-35, and 42 under 35 U.S.C. §103(a) as being unpatentable over Larzon et al. in view of Dillon et al. (United States Patent Number 6,430,233). The Examiner indicated that claims 3, 5-7, 13-14, 18, 21-22, 26, 28-30, 36-37, 40, and 43-44 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The present invention is directed to a complete User Datagram Protocol (CUDP) that reduces packet loss. Channel frame error information is used with a packet level forward error correction (FEC) coding technique to accommodate wireless multimedia traffic. Each packet, as well as the channel frame error information, is forwarded to a given application. The CUDP protocol further assists the FEC decoding process by forwarding the locations of corrupted frames to the FEC decoder. Maximal Distance Separable (MDS) codes can be applied to a group of packets, to achieve additional robustness. An MDS decoder utilizes the frame error information to recognize the erasures within each packet. The error information can be represented as a set of LTU error indicators associated with each packet (for FEC decoders requiring an erasure indicator). The error indicators point to the starting and ending location of the erroneous data. The error information can also be represented as a reformatted packet (for FEC decoders Recognizing Erasures). The frame (LTU) error information from the lower layers is incorporated in the packet payload. An FEC encoder is also disclosed that encodes multimedia packets utilizing a packet-coding scheme, such as a Vertical Packet Coding (VPC) scheme or a Long Vertical Packet Coding (LVPC) scheme.

The specification and claims 1, 2, 4, 5, 8-12, 14, 15, 17, 19, 20, 22-25, 27, 28, 31-35, 37, 39, 41, 42, and 44 have been amended to correct typographical errors.

Election of Claims

The Examiner required restriction under 35 U.S.C. 121 to the invention of Group I, claims 1-44, drawn to a method and system for processing multimedia data in a UDP layer of a wireless receiver, classified in class 370, subclass 469; or Group II, claims 45-54, drawn to a method and system for discarding a multimedia packet having an unrecoverable frame error by a receiver of a wired line network, classified in class 370, subclass 235.

Applicants hereby affirm the election of the claims of Group I with traverse and withdraw the claims of Group II, without prejudice.

Formal Objections

Claim 12 was objected to because the limitation of "second set of said MDS codes are applied to of said information packets" should have read "second set of said MDS codes are applied to each of said information packets." Claim 12 has been amended to correct the cited typographical error and Applicants respectfully request that the objection to claim 12 be withdrawn.

Independent Claims 1, 16, 24 and 38

Independent claims 1, 16, 24, and 38 were rejected under 35 U.S.C. §102(a) as being anticipated by Larzon et al.

Regarding claims 1, 16, 24, and 38, the Examiner asserts that Larzon discloses a transport protocol capable of delivering partially damaged payload to codecs that permit this, while protecting vital header fields with a checksum (forwarding error information with multimedia data to a higher layer).

Applicant notes that Larzon discloses that the policy achieved by UDP Lite is to "provide *data payloads unchecksummed* to the application while checksumming headers." (Page 190, left column; emphasis added.) The present invention, alternatively, is directed to forwarding error information related to the payload, where each packet, as well as the channel frame error information, is forwarded to a given application. The protocol of the present invention further assists the FEC decoding process by forwarding the locations of corrupted frames to the FEC decoder. Independent claims 1, 16, 24, and 38, as amended, require forwarding "*payload* error information

with said multimedia data to a higher layer."

Thus, Larzon et al. do not disclose or suggest forwarding "payload error information with said multimedia data to a higher layer," as required by independent claims 1, 16, 24, and 38, as amended.

Additional Cited References

Dillon et al. was also cited by the Examiner for its disclosure that MDS codes are used in applications data. Applicants note that Dillon is directed to a satellite data receiver which permits the user of a conventional satellite television system to receive data services, other than televised signals, without upgrading their outdoor unit or requiring an installer to be let in to the consumer's home. Dillon does not address the issue of forwarding payload error information with multimedia data to a higher network layer.

Thus, Dillon et al. do not disclose or suggest forwarding "payload error information with said multimedia data to a higher layer," as required by independent claims 1, 16, 24, and 38, as amended.

Dependent Claims 2-15, 17-23, 25-37, and 39-44

Dependent claims 2, 4, 15, 17, 19, 23, 25, 27, 39, and 41 were rejected under 35 U.S.C. §102(a) as being anticipated by Larzon et al. and claims 8-12, 20, 31-35, and 42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Larzon et al. in view of Dillon et al.

Claims 2-15, 17-23, 25-37, and 39-44 are dependent on claims 1, 16, 24, and 38, respectively, and are therefore patentably distinguished over Larzon et al. and Dillon et al. (alone or in any combination) because of their dependency from amended independent claims 1, 16, 24, and 38 for the reasons set forth above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 3, 5-7, 13-14, 18, 21-22, 26, 28-30, 36-37, 40, and 43-44 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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Kevin M. Mason
Attorney for Applicant(s)
Reg. No. 36,597
Ryan, Mason & Lewis, LLP
1300 Post Road, Suite 205
Fairfield, CT 06824
(203) 255-6560